

WHAT IS CLAIMED IS:

1 1. A method of billing a call made by a user in a
2 telecommunications network based on a reported traffic
3 load in the network, said method comprising the steps of:
4 sending to a presence server in the network, a
5 registration message from at least one Media Gateway
6 Control Function (MGCF), said registration message
7 including a traffic load for the MGCF;
8 determining a billing rate for the user based on the
9 traffic load reported by the MGCF; and
10 applying the determined billing rate to the call to
11 calculate a charge for the call.

1 2. The method of billing a call of claim 1 further
2 comprising the steps of:
3 registering in the network, a user who subscribes to
4 a network-load based billing service; and
5 sending from the presence server to the user, an
6 indication of the traffic load reported by the MGCF.

1 3. The method of billing a call of claim 1 wherein
2 the network utilizes Session Initiation Protocol (SIP)
3 control signaling for call setup and call control, and
4 the step of sending a registration message from at least
5 one MGCF to a presence server in the network, includes:

6 modifying a SIP REGISTER message to include traffic
7 load information for the MGCF; and
8 sending the SIP REGISTER message from the MGCF to
9 the presence server.

1 4. The method of billing a call of claim 3 wherein
2 the step of sending a registration message from at least
3 one MGCF to a presence server in the network also
4 includes sending an update SIP REGISTER message from the
5 MGCF to the presence server whenever the presence state
6 of the MGCF changes or the traffic load changes by a
7 threshold amount.

1 5. The method of billing a call of claim 4 further
2 comprising the steps of:
3 registering in the network, a user who subscribes to
4 a network-load based billing service; and
5 notifying the user of changes to the network traffic
6 load whenever the MGCF sends an update SIP REGISTER
7 message to the presence server.

1 6. The method of billing a call of claim 5 wherein
2 the step of notifying the user of changes to the network
3 traffic load includes notifying the user of changes to
4 the network traffic load prior to the user placing the

5 call, thereby enabling the user to assess the
6 corresponding billing rate prior to placing the call.

1 7. The method of billing a call of claim 1 wherein
2 the step of applying the determined billing rate to the
3 call to calculate a charge for the call includes
4 calculating a charge for the call based on the determined
5 billing rate and parameters of the call relating to
6 network resource usage.

1 8. The method of billing a call of claim 7 wherein
2 the billing rate is expressed as a cost per unit time,
3 and the step of calculating a charge for the call based
4 on the determined billing rate and parameters of the call
5 relating to network resource usage includes:

6 determining a duration of the call; and
7 multiplying the duration of the call by the
8 determined billing rate.

1 9. The method of billing a call of claim 7 wherein
2 the billing rate is expressed as a cost per unit volume
3 of data transferred, and the step of calculating a charge
4 for the call based on the determined billing rate and
5 parameters of the call relating to network resource usage
6 includes:

7 determining a volume of data transferred during the
8 call; and
9 multiplying the volume of data transferred during
10 the call by the determined billing rate.

1 10. A method of billing a call made by a user in a
2 telecommunications network based on a reported traffic
3 load in the network, said method comprising the steps of:
4 sending to a presence server in the network, a
5 registration message from at least one Media Gateway
6 Control Function (MGCF), said registration message
7 including a traffic load for the MGCF;
8 sending an update of the traffic load from the MGCF
9 to the presence server whenever the traffic load of the
10 MGCF changes by a threshold amount;
11 registering in the network, a user who subscribes to
12 a network-load based billing service;
13 sending from the presence server to the user, an
14 indication of the current traffic load reported by the
15 MGCF;
16 sending the reported traffic load from the presence
17 server to a billing node when the user places the call;
18 determining by the billing node, a billing rate for
19 the user based on the traffic load reported by the
20 presence server;

21 determining by a Call State Control Function (CSCF),
22 parameters of the call relating to network resource
23 usage;
24 sending the parameters from the CSCF to the billing
25 node; and
26 calculating by the billing node, a charge for the
27 call based on the determined billing rate and the
28 parameters relating to network resource usage.

1 11. The method of billing a call of claim 10
2 wherein the step of determining parameters of the call
3 relating to network resource usage includes determining
4 a duration of the call.

1 12. The method of billing a call of claim 10
2 wherein the step of determining parameters of the call
3 relating to network resource usage includes determining
4 a volume of data transferred during the call.

1 13. A system in a telecommunications network for
2 billing a call placed by a user based on a reported
3 traffic load in the network, said system comprising:
4 at least one Media Gateway Control Function (MGCF)
5 that sends registration information to the network, said
6 registration information including a reported traffic
7 load for the MGCF;

8 a presence and instant messaging (PIM) server that
9 receives the registration information from the MGCF and
10 sends the reported traffic load to a billing node;

11 a Call State Control Function (CSCF) that determines
12 parameters of the call relating to network resource usage
13 and sends the parameters to the billing node; and

14 a billing node that determines a billing rate based
15 on the reported traffic load and calculates a charge for
16 the call based on the determined billing rate and the
17 parameters relating to network resource usage.

1 14. The system for billing a call of claim 13
2 wherein the CSCF includes means for determining a
3 duration of the call, and the billing node determines a
4 billing rate expressed as a cost per unit time and
5 calculates a charge for the call by multiplying the
6 duration of the call by the determined billing rate.

1 15. The system for billing a call of claim 13
2 wherein the CSCF includes means for determining a volume
3 of data transferred during the call, and the billing node
4 determines a billing rate expressed as a cost per unit
5 volume of data and calculates a charge for the call by
6 multiplying the volume of data transferred during the
7 call by the determined billing rate.

1 16. A system in a telecommunications network for
2 billing a call placed by a user based on a reported
3 traffic load in the network, said system comprising:

4 means for controlling data transferred through the
5 network, said data controlling means including means for
6 sending registration information to the network, said
7 registration information including a reported traffic
8 load for the network;

9 means for receiving the registration information
10 from the data controlling means and sending the reported
11 traffic load to a billing means;

12 means for setting up and controlling the call, said
13 call setup and control means including means for
14 determining parameters of the call relating to network
15 resource usage and sending the parameters to the billing
16 means; and

17 billing means for determining a billing rate based
18 on the reported traffic load and calculating a charge for
19 the call based on the determined billing rate and the
20 parameters relating to network resource usage.